

is suitably fixed to depend from slide portion 120 as by a layer of flexible adhesive 124. Pressure portion 122 is characterized as being formed from a very soft and resiliently deformable foam or spongelike material enabling it to readily mold form its lower or pressure applying surface around the contoured or irregularly shaped upper surface of package 14 to which label 20 is to be applied.

In operation, the rates of travel of carrier tape 22 and conveyor 12 are suitably coordinated such that a properly printed label is presented for vacuum pickup by foot 70a in the manner previously described, when the latter is disposed in its initial vertical/horizontal rest position shown in FIG. 5 incident to the arrival of an article 14 at the labeling station; operation of applicator mechanism 18 being thereafter initiated, as by a suitable article presence sensor, such as an electric eye or proximity sensor 130. Sensor 130 initially serves to effect operation of operator 88a in order to retract piston rod 90a and thereby allow automatic lowering of foot 70a, thereby to force a printed label carried by surface 110 into "initial" adhesive bonding engagement with the upper surface of the sensed article. By again viewing FIG. 5, it will be understood that even when a label is applied to a flat surfaced article, its initial bond therewith normally not be uniform, since its trailing edge portion is not clamped against the article by applicator surface 110.

Preferably, the control circuit for applicator mechanism 18 includes a time delay device permitting a short period of time to elapse between retraction and subsequent extraction of piston rod 90a in order to allow applicator foot 70a to momentarily remain in its lower or operable position after application of label 20 to article 14. During this momentary delay in operation, applicator foot 70a is allowed to undergo conjunctive movements with the article in the direction of conveyor travel in response to frictional engagement of the applicator foot with the label and/or adjacent portions of the surface of the article.

Preferably, before foot 70a has been horizontally displaced sufficiently to result in engagement of guide in 100a with its associated end of guide slot 102a, the control circuit is operable to interrupt the vacuum condition in passageway 114, whereby to release the applied label from surface 110, and to extend piston rod 90a in order to return applicator foot 70a to its upper rest position. Upon upward movement of foot 70a from frictional constraining engagement with label and/or adjacently disposed portions of the article surface, spring device 104a is operable to return foot 70a to its rest horizontal position, whereupon the vacuum condition in passageway 114 is again established. Operation is such as to insure return of applicator foot 70a to its rest position shown in full line in FIGS. 1 and 5 prior to the arrival of the next or succeeding article at labeling station 10. The ability of applicator foot 70a to undergo conjunctive movements with the article after initial application of the label thereto affords sufficient time to interrupt the vacuum condition present within passageway 114 in order to insure separation of the label from applicator surface 110 without disturbing the initial bond between the label and the article; serves to prevent or minimize relative horizontal movements between the foot, the label and the article, such as might otherwise cause displacements of the label relative to the article and/or damage to the surface of the article; and serves to positively maintain the label in

engagement with the article during a substantial portion of article travel between the point at which the label is initially applied and the point at which a compressor foot 70b becomes operative. This ability of applicator foot to undergo horizontal displacements is particularly advantageous in situations wherein the label is to be applied to a contoured or irregularly shaped article surface, which may prevent initial bonding of more than a very small portion of the label thereto and may have "higher" surface areas than the area to which the label is applied.

The controls for operator 88b are slaved to the controls for operator 88a in order to delay operation of the former until applicator foot 70a has been lifted from engagement with article 14 and such article has been moved by conveyor 12 into vertical alignment with compressor foot 70a, as indicated in phantom line in FIG. 5. When operator 88b is operated to retract piston rod 90b, compressor foot 70b is driven downwardly by means of gravity and spring device 94b into engagement with the applied label, whereby to cause "molding" of the label to assume the contour of the upper surface of the article and effect a uniform bond therebetween. The ability of compressor foot 70b to subsequently undergo conjunctive movements with the article in the direction of conveyor travel permits the bonding operation to be completed and the compressor foot subsequently lifted without damage to the label or the article.

Preferably, operator 88b is energized to extend piston rod 90b for the purpose of returning compressor foot 70b to its original upper rest position prior to engagement of guide pins 100b with the ends of guide slots 102b, whereupon spring device 104b is operable to return the compressor foot to its original horizontal rest position shown in FIGS. 1 and 5.

The above described sequence of events occurs each time an article is sensed by sensor 130.

While the above described mode of operation is preferred for the reasons already discussed, it would of course be possible to enlarge the horizontal spacing between feet 70a and 70b, such as to permit operators 88a and 88b to be operated so as to simultaneously drive the feet into engagement with a pair of adjacently disposed packages.

For situations requiring extremely accurate positioning of labels on the articles, conveyor 12 may be provided with a vertically extensible stop 140 adapted to momentarily arrest article travel beneath applicator foot 70a. The operator for controlling stop 140 may be conveniently controlled as by sensor 130. When stop 140 is employed, applicator foot 70a would normally only be subjected to vertical reciprocating movements.

It will be understood that means other than gravity and/or spring force may be employed to drive feet 70a and 70b into operative engagement with the transported articles, thus permitting labels to be applied to such articles while being transported along a path of travel other than horizontal.

I claim:

1. An apparatus for applying labels to articles, which comprises:

- a conveyor for transporting said articles in succession along a path of travel;
- a source of labels spaced from said conveyor;
- label applicator means having an applicator foot mounted for reciprocating movements transversely of said path of travel between said source and said